

Date: Friday, 5/5/2006 1:20:17 PM
 User: Linda Lacelle

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : ROUND BILLET, ALUMINUM
Job Number : 27033	
Estimate Number : 12286	
P.O. Number : N/A	Part Number : D6103003
This Issue : 5/5/2006 S.O. No. : N/A	Drawing Number : D6103 REV B
Prsht Rev. : NC	Project Number : N/A
First Issue : N/A Type : PURCHASED PARTS	Drawing Revision : B
Previous Run : 25806	Material : N/A
Written By : SEE COMMENT BELOW	Due Date : 5/16/2006 Qty: 44 Um: Each
Checked & Approved By : SEE ABOVE DATE & USER	
Comment : Est Rev:A New Issue 06-02-09 JLM	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	PG	PURCHASING
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Comment: PURCHASING

Issue P/O: 1177

a) Description: Alluminum round billet

b) Ø3.500" x 12.500" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 7075-T7351 (QQ-A-225/9)

Material certification required

2.0	D6103003P	round alum billet
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 44.0000 Each(s)
 alum billet

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

4.0	QC6	DIMENSIONAL CHECK
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Comment: DIMENSIONAL CHECK

5.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Identify and Stock

Location:

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

Date: Friday, 5/5/2006 1:20:17 PM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: ROUND BILLET, ALUMINUM

Job Number: 27033

Part Number: D6103003

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL
Inspection Level 21

Handwritten: 06/05/17

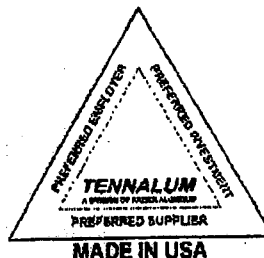
Job Completion



Handwritten: U 06-05-17

KAISER ALUMINUM FABRICATED PRODUCTS

Tennalum
PO Box 669
Jackson, TN 38302
731-423-2811



Revised Certification
CERTIFIED TEST REPORT
<http://KaiserEngProd.com>

CUSTOMER PO NUMBER: 01-47809		CUSTOMER PART NUMBER: 8808		PRODUCT DESCRIPTION: Gold Finished Round	
KAISER ORDER NUMBER: 609119	LINE ITEM: 1	SHIP DATE: 12/06/2005	ALLOY: 7075	TEMPER: T7351	
WEIGHT SHIPPED: 2107 lbs.	QUANTITY: 15 pcs.	B/L NUMBER: 23945	DIAM/DIAF/THKNS: 3.500 in.	WIDTH: 0.000 in.	LENGTH: 144.0 in. ✓
SHIP TO: A M Castle & Co 3400 No. Wolf Road Franklin Park, IL 60131 USA			SOLD TO: A M Castle & Co 3400 No. Wolf Road Franklin Park, IL 60131 USA		

Test Code: 1000 AC

Actual Physical Properties

Lot Number	LONG. UTS ksi	LONG. YTS ksi	LONG. ELONG. %	COND % IACS
20073207	70.5	58.5	16.0	39.1
20074067	70.3	52.4	16.0	39.2

Chemical Composition, WT. % (Aluminum Remainder)

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	OTHERS EACH	OTHERS TOTAL	Lot
Actual	0.09	0.28	1.4	0.03	2.8	0.19	5.9	0.02			20073207
Actual	0.15	0.24	1.4	0.02	2.7	0.20	5.9	0.02			20074067
Max	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.15	
Min			1.2		2.1	0.18	5.1				

Specifications

Standard: ISO 9001, ASTM B211-03, AMS 4124C, AMS-QQ-A-225/9 Non-Standard: A97075-11-6

CASTLE METALS FP
DATE REC'D 12/10/05 JAG 8808
APPROVED BY:

CERTIFICATION

Kaiser Aluminum & Chemical Corporation ("Kaiser") hereby certifies that the metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

John Rennekamp, Quality Manager

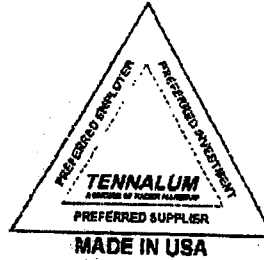
Plant Serial: 62143

Kaiser Order Number: 609119

Line Item: 1

KAISER ALUMINUM FABRICATED PRODUCTS

Tennalum
PO Box 669
Jackson, TN 38302
731-423-2811



Revised Certification
CERTIFIED TEST REPORT
<http://KaiserEngProd.com>

Miscellaneous Notes

Made in USA

This material was melted and manufactured in the USA. Mercury is not a normal contaminant in aluminum alloys. Neither mercury nor any of its compounds were utilized by Kaiser Aluminum in the manufacture of this material. This material meets the requirements of (cold finished) T73 temper and QQ-A-225/9E (CANCELLED). NAFTA - YES.

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John Rennekamp, Quality Manager

John Rennekamp

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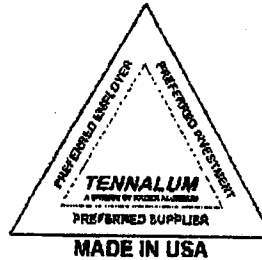
Kaiser Order Number: 609119

Page 2 of 2

Line Item: 1

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Tennalum
PO Box 869
Jackson, TN 38302
731-423-2811



Revised Certification
CERTIFIED TEST REPORT
<http://KaiserEngProd.com>

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KAISER ORDER NUMBER: 609119	LINE ITEM: 1	SHIP DATE: 12/06/2005	ALLOY: 7075	TEMPER: T7351	
WEIGHT SHIPPED: 2107 lbs.	QUANTITY: 15 pcs.	B/L NUMBER: 23945	DIAM/DAF/THKNS: 3.500 in.	WIDTH: 0.000 in.	LENGTH: 144.0 in.
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DATE REC'D 12/10/05 IAQ 8808
APPROVED BY: [Signature]

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John Rennekamp, Quality Manager

John Rennekamp

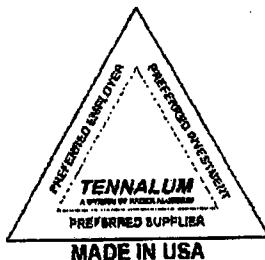
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Specifications

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CASTLE METALS FP
DATE REC'D 12/10/05 IAQ 8808
APPROVED BY: [Signature]

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John Rennekamp, Quality Manager

John Rennekamp

Plant Serial: 62143

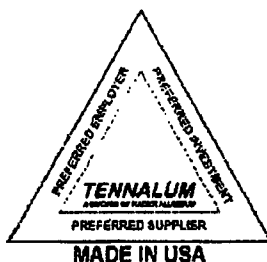
Kaiser Order Number: 609119

Line Item: 1

12 00 00 20.13 11011

KAISER
ALUMINUM
FABRICATED PRODUCTS

Tennalum
PO Box 669
Jackson, TN 38302
731-423-2811



1-103 F002/013 F-010

Revised Certification
CERTIFIED TEST REPORT
<http://KaiserEngProd.com>

Miscellaneous Notes

Made in USA

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John Rennekamp, Quality Manager

Plant Serial: 62143

Kaiser Order Number: 609119

Page 2 of 2

Line Item: 1

Certified Inspection Report

08/30/05
14:33:16

Alcoa Global Cold Finished Products
Massena Operations
Park Avenue East, Massena, NY 13662



Customer
Castle A M & Co

Customer P.O. No.
01-42443

Customer Part No.
(8808)

Alcoa Order No.
MMC-63346-001

Govt. Contract No.

Ship To **A. M. Castle & Company**
3400 North Wolf Road
Bay #7
Franklin Park, IL 60131

We hereby certify that the material covered in this report has been inspected in accordance with, and has been found to meet the applicable requirements described herein, including any specifications forming a part of the description and that samples representative of the material met the composition limits and have the mechanical properties shown on the face of this sheet. Manufactured under an ISO/9000 registered quality management system.

Melted and manufactured in the USA.
James A. Brock, Quality Assurance Manager

James A. Brock

Date Shipped **08/30/05** Weight Shipped **1,127 lbs**
Alloy - Temper **7075-T7351** Size **3.50000 IN**

Product **CFRB-CF ROD** Specific Length
Shape **DIA** Config **12 FT**

BOL **008151323**
QRR

Specifications:

A97075-11 Rev 6 w/exceptions & comments
per M Carroll ltr dtd 7/19/04
Material conforms to T73 requirements
Minimum mechanical properties to apply:
68 KSI Tensile Strength
56 KSI Yield Strength
10% Elongation
QQA-225/9E (Except Size)
ASTM B211-03 (Except Size)
AMS-QQA-225/9 (Except Size)

CASTLE METALS FP
DATE REC'D **8/31** IAC **8808**
APPROVED BY **JF**

Product produced and marked to the requirements of AMS-QQ-A-225/9 also meets the requirements of QQ-A-225/9.
Product produced and marked to the requirements of QQ-A-225/9 also meets the requirements of AMS-QQ-A-225/9.

TEST REQUIREMENTS	Test	Test	Test	Test	Test	Test	Test	Test	Test	Test
	U.T.S.	T.Y.S.	%Elong	Cond						
Max:		67.9								
Min:	68.0	56.0	10.0	38.0						

Test Results	Lot / Work Order	No. of Tests	Test	Test	Test	Test	Test	Test	Test	Test	Test
			U.T.S.	T.Y.S.	%Elong	Cond					
	00500051117	1	73.0	62.9	14.0	40.5					
			73.0	62.9	14.0	40.5					

TEST ABBREVIATIONS

U.T.S. Ultimate Tensile Strength KSI
Cond Conductivity % IACS

T.Y.S. Tensile Yield Strength KSI

%Elong Elongation % in 2'

Aluminum Association Chemical Composition Limits (in Weight %)

ALLOY		%SI	%FE	%CU	%MN	%MG	%CR	%ZN	%TI	%Others	%Others	%AL			
7075	MAX	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.15	Rem			
	MIN			1.2		2.1	0.18	5.1		Each	Total				

Actual Started Chemistry

LOT/WORK ORDER		%SI	%FE	%CU	%MN	%MG	%CR	%ZN	%TI	%OE	%OT	%AL			
00500051117	MAX	0.06	0.24	1.6	0.02	2.5	0.20	5.7	0.02	LT 0.05	LT 0.15	Rem			
	MIN	0.06	0.24	1.6	0.02	2.4	0.19	5.6	0.02						

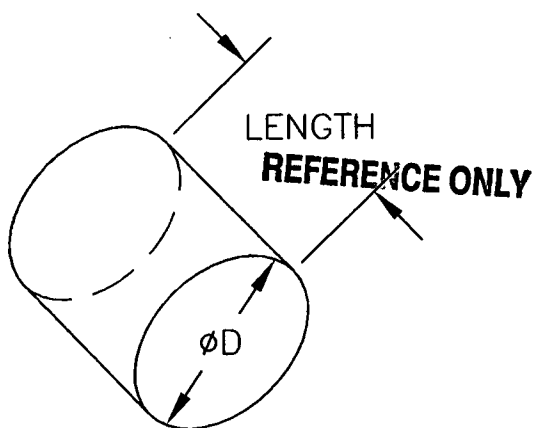
NOTES:



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6103	Rev. B SHEET 1 OF 1
DATE 06.01.31		TITLE ROUND BILLET, ALUMINUM	SCALE NTS
A	01.04.10	NEW ISSUE	
B	06.01.31	RE-ADD D6103-003	

SPECIFICATION CONTROL DRAWING

RELEASED
06.02.07



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

Part No.	Alloy	D (Diameter)	Length
D6103-001	7075-T6/T651 (QQ-A-200/11 OR QQ-A-225/9)	Ø3.250	12.50
D6103-003	7075-T7351 (QQ-A-225/9)	Ø3.500	12.50

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